

REMARKS

The applicant originally submitted claims 1-21 in this application. In a response to a previous Office Action, the applicant amended claims 1 and 8 and canceled claims 2 and 12-21. In this response to the current Office Action, the applicant has amended claims 1, 3, 5, 7, 8 and 11, and canceled claims 4, 6 and 9. Accordingly, claims 1, 3, 5, 7, 8, 10 and 11 remain pending in this application. The applicant has not added any new matter to the claims or to the specification.

The Examiner rejected claims 1, 3, 7 and 11 under 35 U.S.C. §102(b) as being anticipated by Cocchini et al. (U.S. Patent No. 6,327,876). Also, the Examiner rejected claim 8 under 35 U.S.C. §102(b) as being anticipated by Kato (JP Abstract 11130455). The applicant respectfully traverses the rejections in view of the foregoing claim amendments and the remarks set forth below.

The applicant has amended claim 1 to recite that the method for making optical fiber includes both rotating the preform relative to the heat source as the preform is being heated, and spinning the optical fiber as it is being drawn from the heated preform. Support for the claim amendments is found in the applicant's description, e.g., in paragraphs [0007], [0019] and [0025]. Nothing in the cited art discloses or suggests the applicant's invention as recited in the amended claims.

The Cocchini et al. reference discloses a method for applying spin to an optical fiber during the process of applying a coating to the optical fiber by rotating the die that applies the coating to the optical fiber. The method disclosed in Cocchini et al. does not involve rotating an optical fiber preform. The background section of Cocchini et al. makes reference to prior art methods of rotating the optical fiber preform. However, nothing in Cocchini et al. discloses or suggests both rotating the preform relative to the heat source as the preform is being heated, and spinning the optical fiber as it is being drawn from the heated preform. Kato only teaches of heating an optical fiber more evenly by rotating the furnace while keeping the fiber preform rotationally stationary. Kato does not disclose spinning fiber drawn from the heated preform.

In the applicant's invention, rotating the preform relative to the heat source while the preform is in the heating zone of the heat source provides more uniform heating to the preform, which reduces preform geometric deformities. Spinning the optical fiber drawn from the heated preform reduces PMD in the fiber. However, spinning optical fiber drawn from a heated preform that is more concentric (*i.e.*, has fewer geometric deformities), *e.g.*, as a result of the preform rotation, enhances the effect that spinning the fiber drawn from the preform has on reducing PMD in the fiber.

Moreover, by combining the rotation of the heated preform with the spinning of the optical fiber drawn from the heated preform, neither the rate of rotation of the heated preform nor the rate of spin of the fiber drawn from the heated preform has to be as great as it would need to be if either function was performed without the other, to achieve the same benefit. That is, to obtain desirable PMD reduction, rotating the heated preform without subsequently spinning the fiber drawn from the heated preform would require the preform rotation rate to be much greater than is practical for commercial fiber production. Similarly, spinning the optical fiber during draw from a stationary preform requires a higher spin rate, and higher spin rates impart mechanical vibrations onto the fiber during draw, which adversely affect coating uniformity. It is noted that a glass fiber is coated with at least one layer of a protective coating material as it is being drawn from a preform, and that coating materials are applied by passing the fiber through a narrow opening in a die. Fiber vibrations are clearly undesirable.

The applicant's claimed invention both rotates an optical fiber preform (*relative to the heat source*) as the preform is being heated and spins the optical fiber drawn from the heated optical fiber preform. As such, both functions can be performed at much lower rates, *i.e.*, rates that are much more practical for commercial fiber production. Nothing in any of the cited references discloses or suggests the advantages of such combination.

Therefore, the applicant respectfully submits that the applicant's invention as recited in the amended claim 1 is neither disclose in nor suggested by the

cited art. The remaining claims depend directly from claim 1. Accordingly, the applicant respectfully requests that the Examiner withdraw the rejection of claims 1, 3, 7 and 11 under 35 U.S.C. §102(b) as being anticipated by Cocchini et al. and the rejection of claim 8 under 35 U.S.C. §102(b) as being anticipated by Kato.

The Examiner rejected claims 3, 4, 9 and 10 under 35 U.S.C. §103(a) as being unpatentable over Cocchini et al., as applied to claim 1 above, and further in view of Henderson et al. (U.S. Patent No. 6,240,748). Also, the Examiner rejected claims 5-7, 10 and 11 under 35 U.S.C. §103(a) as being unpatentable over Cocchini et al., as applied to claim 1 above, and further in view of Fujimaki et al. (WO00/69782; U.S. Patent No. 6,789,399). The applicant respectfully traverses the rejections in view of the foregoing claim amendments and the remarks set forth below.

As discussed hereinabove, the Cocchini et al. reference does not disclose or suggest the applicant's invention as recited in the amended claims. Also, the Henderson et al. reference and the Fujimaki et al. reference disclose preform rotation only. They do not disclose fiber spinning. The Hart, Jr. et al. reference discloses fiber spinning, but does not disclose preform rotation. The applicant respectfully submits that nothing in any of the cited art suggests combining the rotation of an optical fiber preform (relative to the heat source) as the preform is being heated and the spinning of the optical fiber drawn from the heated preform. The cited art that discloses preform rotation typically discloses rotating the preform as an alternative to fiber spinning; none of the cited art discloses or suggests preform rotation in addition to fiber spinning. Moreover, it is not enough to cite a preform rotation reference and a fiber spinning reference and conclude that the applicant's invention is obvious in view of the two references. There must be some suggestion in the cited references to combine preform rotation and fiber spinning. The applicant respectfully submits that there is no such suggestion in any of the cited art.

Accordingly, the applicant respectfully submits that the applicant's invention as recited in the amended claims is not disclosed in or suggested by

the cited art. Therefore, the applicant respectfully requests that the Examiner withdraw the rejection of claims 3, 4, 9 and 10 under 35 U.S.C. §103(a) over Cocchini et al. and further in view of Henderson et al., and the rejection of claims 5-7, 10 and 11 under 35 U.S.C. §103(a) over Cocchini et al. and further in view of Fujimaki et al.

The Examiner rejected claim 9 under 35 U.S.C. §103(a) as being unpatentable over Cocchini et al., as applied to claim 1 above, and further in view of Hart, Jr. et al. (U.S. Patent No. 5,418,881). As discussed hereinabove, the applicant has canceled claim 9, thus removing it from consideration. Therefore, the basis for the rejection has been removed. Accordingly, the applicants respectfully requests that the Examiner withdraw the rejection.

Also, the applicant has amended claims 3, 5, 7, 8 and 11 for clarity. The applicant has not added any new matter to the amended claims.

The applicant submits that all claims are in patentable form, and respectfully urge that all the claims be allowed and the application be passed to issue. If the Examiner disagrees, the Examiner is invited to call the attorney for the applicant at the telephone number provided below.

Respectfully,

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